autopsies in cases of typical hemianopsia, with a view to the elucidation of the much-discussed question: "Is the decussation in the optic chiasm partial or complete?" He concludes by laying down as necessary postulates of the theory of semi-decussation, which he upholds: first, that homonymous hemianopsia occurs most frequently, is sharply defined, and may be stationary, that is it may not involve the intact halves of the visual fields; secondly, that crossed temporal hemianopsia is relatively rarer, not so sharply defined, and is progressive; thirdly, that nasal hemianopsia never occurs.

In a paper on the "Changes of the Fundus Oculi in General Anæmia" Hirschberg distinguishes in the fundus three varieties of pathological appearances.

1st. The optic papilla of both eyes becomes pale, the retinal vessels remaining unchanged, and later becomes almost as white as in extra-ocular atrophy, but without the sharply-defined limitation of the disk. The vision is unchanged unless disturbed by exudation or hemorrhages into the retina. This change occurs both in pernicious and curable anæmia.

2d. In chronic anæmia, whether pernicious or secondary, following loss of blood, the optic papilla becomes cloudy-white, the vessels are narrowed, especially the arteries, and cannot be followed distinctly for any great distance beyond the margin of the disk. There exists a delicate optic neuritis without much disturbance of vision. Hemorrhages and exudation may occur as well here as in the first variety.

3d. A few days after the loss of blood there may occur a pronounced neuroretinitis, without any premonition, with great exudation and numerous hemorrhages, and disturbance of vision, which may lead in a few days to absolute amaurosis.

He gives the histories of a number of cases, which illustrate the three forms of change.

The third paper, by Hirschberg, is on the "Elementary Description of Gauss's Dioptrics of Spherical Surfaces," and is purely mathematical.

The last paper is by Pufahl, and consists of rather voluminous clinical notes of interesting cases, among which we may note a case of granuloma iridis, one of choroidal tubercle, several of congenital changes in the optic nerve, one of intraocular cysticercus, and two of diabetic cataract.

These brief publications contain many points of interest to ophthalmologists, and are to be continued periodically. C. S. B.

ART. XXVI.—*Ninth Annual Report of the State Board of Health of Massachusetts.* 8vo. pp. xl., 529. Boston, 1878.

THIS Report comes loaded as usual with valuable and interesting matter. From the general report which occupies the earlier pages, as well as from passages in several articles treating of the sanitary condition of special localities, we learn that saturation of the soil with various forms of filth has become a most important and active source of injury and danger to the public health in many of the towns. The State is one of the most densely populated, and oldest in the Union. The natural tendency has been for a progressively increasing contamination of its soil, and consequently of its air, and its waters from wells or rivers. In some districts where the underlying rock is but thinly covered with soil, and sometimes so disposed as to retain sewage, or to conduct it into wells or other sources of water-supply, this cumulative pollution is pretty clearly shown to exert a decided and baneful effect upon the public health. Contamination of the rivers, too, tends to become worse and worse. Unfortunately, too, the protection of the soil from growing impurity seems practically attainable, in many cases, only through still further use of the streams as carriers of sewage. The dilemma is a grave one, and not wholly susceptible of a satisfactory disposition. Of one fact, however, the Board entertain no doubt, viz., that the present danger from pollution of rivers is much less in Massachusetts, to-day, than that from soil-saturation, with its associated poisoning of air and of well-water. Thus it comes about that the pollution of streams, great evil though it be, is rather to be regulated and controlled, than attempted to be utterly prevented.

The ascertaining of the impurity of well-waters in different parts of the State, forms an important part of the last year's work of the Board. The results of the investigation are rather startling. They are, however, very temperately interpreted—it being freely admitted that foul water is, practically, oftener a favouring condition, than an actual cause, of disease. Among the points most clearly brought out in these researches we may note these: that very bad water is often clear and tasteless; that public water-supply, without a system of sewers, is sometimes productive of more harm than good; and that the connection of houses with the sewers, unless very judiciously planned and performed, may also prove more a cause of disease than a preventive.

Dr. Adams, of Pittsfield, gives a brief and suggestive account of an experiment there made, in the way of "cottage hospitals," for general medical and surgical cases. There certainly are strong arguments in favour of small hospitals, scattered through the country, homelike, and near to the homes of the patients. We can easily conceive, too, that some grave objections towards small receptacles for the insane do not hold as regards institutions such as we have described. The experimental test, at least, is not very difficult, nor very expensive, and affords to the beneficent an opportunity to do good near home, and to guide the workings of their own charities. Certain social peculiarities of our people, which in practice render resort to the great city hospitals very rare on the part of the rural population, would seem to point to an even greater usefulness for such local charities, here, than in England, where the plan has been somewhat extensively followed.

Prof. Nichols, the distinguished chemist of the Technology school, treats at considerable length of "Filtration of Potable Water." A clear statement is made as to the character of the impurities capable of removal. Attention is drawn to a somewhat prevalent muddiness of men's ideas as to the solution, or the suspension, of foreign matters in water. The nature and scope of natural filtration, by which the water is collected only after passing through filtering strata of Nature's arrangement, is explained as a preliminary to a somewhat full description of the various combinations of materials by which men have copied the natural process, both on a large scale and for the single household.

As the results of foreign and domestic experience, and of experimental investigation by the writer, the following conclusions, with others, are arrived at. Sand is the only agent largely available for filtration, in supplying cities and towns. Such filtration, while it may remove a portion of matter in solution, and perhaps all that which is merely suspended, cannot be regarded as rendering a polluted water safe. Any systematic attempt at purifying a water-supply requires not only a considerable outlay for the construction of works, but also an enlightened supervision, and a continued expenditure, to keep the filters in an effective condition.

Household filtration is treated of with some minuteness of detail. Animal charcoal is regarded as the most effective purifying filter. The chief practical troubles are, first, that a filter which is efficient delivers the water very slowly, and second, that there is constantly going on a process of clogging and fouling which requires incessant care, either to maintain the purity, or the transmission, or both.

Various combinations and methods of artificial filtration, on large and small scales, and adaptations of natural filtration to the purposes of water-supply, are described in detail, illustrated by wood-cuts, and tabular statements given of the kind and amount of purification attained in different cases.

An excellent feature of this paper, as of some of its companions, is a directory to the literature of the subject, which must prove of great assistance to any one having occasion to make thorough investigations at short notice.

Dr. D. F. Lincoln, continuing a line of investigation in which he has previously elicited startling facts, treats of the sanitary conditions of public schools, including their agency as disseminators of contagious diseases. The method, so much employed by this Board, of circular letters of inquiry, has here again been used to collect facts and opinions from all parts of the State. The questions were addressed, not to teachers, but to prominent physicians who had consented to act as "medical correspondents" of the Board. While confirming the views formerly expressed by Dr. Lincoln and by others, in different parts of the country, as to the general existence of unwholesome conditions, in and around our schools, this paper requires no especial comment in addition to what we have recently said in other connections. The evils which cluster about our schools, dependent on construction, location, and management, are certainly very real and very grave. Neither physicians nor parents should ever cease to critically examine the conditions under which so many hours of children's lives are daily passed.

Dr. A. H. Johnson, of Salem, has prepared an article upon scarlet fever. It is designed to convey to all intelligent readers such knowledge of the nature and conditions of the disease as may enable them to take all proper precautions against its occurrence and its communication. A good deal of space is devoted to the importance of disinfection,—of clothes, other portable articles, furniture, and the sick-rooms. The methods by which this can be best accomplished, and the spread of the malady prevented, are here treated in a very practical and useful way. This is one of the papers whose general circulation, in the form of a cheap tract, might be of great service. The amount of imprudence and carelessness, to give it no worse name, displayed by friends and the public, in connection with infectious diseases, especially of children, would seem almost incredible, if not daily witnessed. Surely a large proportion of our people need only such enlightenment as is here presented to abandon customs and practices which have hitherto done very much to multiply cases of this terrible class of maladies.

Continuing a plan some years ago adopted of presenting somewhat elaborate statements of the sanitary condition and influences of the larger towns and cities of the State, we find in this Report an examination into all the circumstances affecting the health of the university town of Cambridge. The flatness of its territory, but little elevated above tide-water, the vicinity to marshy districts, and the character of the subsoil, are unfavourable to general healthfulness. Certain wards have a high death-rate, and are a constant menace to the more favoured localities. As a whole, however, the mortality is not excessive.

The usual extracts from reports of correspondents from all over the State, given collectively under the title "Health of Towns," are here presented. The questions, to which especial attention had been called, are omitted—inadvertently we suppose. The average of health as compared to former years is referred to by nearly all reporters. The general testimony is to a remarkably high state of health for the year 1877. The very few exceptions are almost invariably caused by some one epidemic disease, usually diphtheria. Boston shows a death-rate of 20.72 in 1000, against 23.84 in 1876. The temperature of the year was higher, but the variations were less. The very warm December, so generally deemed "unhealthy" by the public, shows a very low mortality. The chief gain was in the fall and winter.

Diphtheria, while occasionally sparing a town, or appearing in a much milder form than in some former year, furnishes a very large proportion of the sickness and death throughout the State. We cannot perceive any uniformity in the reports as to its greater or less severity of type during the year. In one town the cases may have been generally mild, and in the next perhaps unusually severe. And where it was very fatal one year, it was very slightly so another. In Boston, while only about two-thirds as fatal as in 1876, it furnished nearly five per cent. of the total mortality.

While there is a very large amount of testimony towards the general existence of filth or bad drainage, as an element in the causation of this disease, there is also much positive evidence that the disease sometimes appears amid the most favourable surroundings. In the terrible epidemic prevalence of diphtheria in Gloucester, it was moreover observed that some of the worst localities were almost exempt.

Many very curious instances are given of the methods by which infection has been carried—but for these we lack space. It is evident however that the profession throughout the State are startled and alarmed at the amount and fatality of diphtheria of late years. In Taunton there were 93 deaths from diphtheria, out of a total mortality of 433. In Lawrence out of 875 deaths 117 were due to this cause, or 13 per cent. Lynn shows about the same figures, absolute and relative. In Gloucester also, the deaths from this cause have been about 15 per cent. of all, while in 1876 alone, the rate seems to have been nearly double that. Among smaller towns, we meet one with a mortality of 86, of which 24 are attributed to this disease. In another, about the same number from diphtheria, out of a total mortality of 175. In others, we find 12 out of 62; 10 or 12 out of 100; 5 out of 42, 14 out of 94, 10 out of 70, 6 out of 42, etc. These figures, which are mere examples, will well account for the attention paid in this report to diphtheria.

Other zymotic diseases do not present any especial claims to notice. Typhoid fever, however, is several times noted as less frequent, generally in connection with mention of improved water-supply. In one town it is said to be nearly confined to people who persist in using well-water. Particular cases, especially where several occur in one house, are generally attributed to bad water.

Phthisis is in several instances noted as furnishing less proportionate mortality than formerly; and this, in one or two larger cities, is attributed to the diminished number of Irish emigrants since the "hard times." This class have been known for some years to contribute more than their numerical proportion to the deaths from consumption.

Two deaths from bites of rabid animals are noted; the first from a dog—not fully reported; the second from a cat, was possibly pseudo-hydrophobia.

In connection with an alleged increase of consumption in a manufacturing town, occurring principally among young Irish mill-hands, it is stated that "snuff-dipping" is a vice almost universal among the female workers.

A special report deals with diphtheria as it appeared in Gloucester for a few years past. We will return to this subject only briefly to note the peculiar local conditions. The soil is very thin, superimposed upon solid granite, or occasionally upon clay. After rising somewhat abruptly from the seaside, the surface is undulatory, causing marshy spots and damp cellars. For two centuries, all excrement has been placed in rudely built privies. Wells, necessarily shallow, owing to the underlying rock, have provided drinking water. Believing that there must exist contamination of this water, the Board sent specimens from thirty or forty wells to Prof. Nichols for examination. "Do people actually drink this water?" was asked by the astonished workers in the laboratory. One sample is stated to be worth for manure "twice as much as ordinary sewage," but this well had for some time been abandoned. Two specimens--equal as fertilizers to the contents of the Pittsfield sewers, the first from a well in use by three families who are "always well," and the second from a well constantly used from birth by a family of exceptionally robust children—are mentioned as proof that foul water *alone* will not cause diphtheria or other disease. Yet not only these, but all the waters tested, were pronounced unfit for human consumption. In spite of the extraordinary exceptions above noted, we presume our readers will agree with the Board in believing that there is some connection between the diphtheria and the water, in the sea-girt peninsula inhabited by hardy fishermen and their industrious and intelligent families.

One or two other special reports, and a tolerable index, complete this excellent Report. Many matters of great interest we have been obliged to touch hurriedly or to ignore entirely. The work is an acquisition to any medical library fortunate enough to get it. B. L. R.

ART. XXVII.—*Transactions of State Medical Societies.*

1. *Transactions of the Medical Association of Georgia*, April, 1878, pp. 279. Atlanta, Ga., 1878.
2. *Transactions of the Mississippi State Medical Association*, April, 1878, pp 168. Jackson, Miss., 1878.
3. *Transactions of the Iowa State Medical Society*, May, 1877, and Jan. 1878, pp. 196. Des Moines, 1878.
4. *Transactions of the Vermont Medical Society*, June, 1877, pp. 88. St. Albans, Vt., 1878.
5. *Transactions of the Rhode Island Medical Society* for 1877 and 1878, pp. 49. Central Falls, 1878.
6. *Proceedings of the Connecticut Medical Society*, May, 1871, pp. 234. Hartford, Conn., 1878.

1. WE regret to learn, from the *Georgia Transactions*, that the recently organized Health Board of that State has been rendered, of late, practically inoperative, through the short-sighted parsimony of the Legislature. The liability to occasional invasions of yellow fever, should alone amply justify, to the dullest lawgiver, the expenditure necessary to maintain the Board.

Dr. Walker reports the delivery of a dead fœtus, apparently of two and a half months, coincidently with a fully developed and living infant. A discharge of fluid, supposed to be amniotic, had occurred one week before the final labour. The doctor believes that the younger embryo ceased to live at this time, and that it was, as it appeared, the fruit of conception occurring during advanced pregnancy. It was delivered after the living child, and before the developed placenta. A cord some six inches in length was attached to it, but no separate placenta, nor any connection with the other cord or membranes could be detected.

Professedly limiting himself to the disease as observed in the epidemic of 1876, Dr. Le Hardy examines with some minuteness the history of yellow fever, as prevailing in Savannah, from its earliest appearance. He believes the disease can and does originate on the spot, independently of any importation. High temperature with great humidity of air, in connection with stagnant waters upon the rice-swamps, furnish the conditions under which the disease is born. Quarantine or the imposing of long seclusion and delay upon persons and cargoes from in-